

Chernobyl Disaster a Turning Point

Part three of a series

By Jesus E. Gomez

If societies worldwide want to continue using nuclear power, the benefits must be balanced against the risks!

Chernobyl's accident was a turning point for the nuclear power industry worldwide. According to World Association of Nuclear Operators (WANO), "It demonstrated clearly that nuclear power in some parts of the world was not safe enough." The association points out that the accident "caused such a negative opinion of nuclear energy that, should such an accident occur again, the existence and future of nuclear energy all over the world would be compromised."

On the International Nuclear Event Scale (INES), the Chernobyl nuclear accident rates the highest classification, which is level seven. The worst nuclear accident in the West, which was rated a level five by the INES, occurred in the pressurized water reactor at the Three Mile Island facility in Pennsylvania in 1979.

Chernobyl incidents are still happening but now are relatively minor compared to the two explosions occurred on April 26, 1986. For example, on Nov, 1995, a small amount of nuclear fuel leaked from the Unit 1 reactor and exposed a worker to about one year's permitted radiation dose.

Past experience indicates that there will be another Chernobyl-scale accident, World Health Organization (WHO) scientist Keith F. Baverstock suggests. The increasing number of older reactors is especially a cause for concern.

According to David R. Kyd, director of the Division of Public Information at the International Atomic Energy Agency (IAEA), Vienna, Austria, "There are more than 430 nuclear reactors in the world, with more being built." More significantly, the number of reactors that are aging is inevitably increasing. The first nuclear reactor went on-line about 40 years ago.

The huge 300,000-metric-ton concrete and steel sarcophagus that was built at Chernobyl to entomb the destroyed reactor still contains uranium fuel. It is thought to include pellets and hot particles of enriched uranium dioxide, and three streams of solidified lava of fuel mixed with sand and concrete. The long-term stability of the sarcophagus is causing concern.

It is now generally accepted that the Chernobyl accident occurred, as WANO puts it, "because of a combination of the physics characteristics of the reactor, the design of the control rods, human error, and management shortcomings in the design and implementation of the [safety] experiment." The theory that accidents are rarely due to a single cause is well demonstrated here. Chernobyl "was an accident waiting to happen." Changes to the design on nuclear plants along with the implementation of administrative measures have improved safety conditions of operations. There have been other safety improvements since the accident, including the installation of emergency core-cooling systems and remote-control rooms in the first-generation Chernobyl-type, and better operation rules and procedures.

The nuclear industry has learned a number of things from Chernobyl. The most important is that it led to the formation of the World Association of Nuclear Operators, an organization that brought together operators to look at safety and coordination of safety on a world scale.

Professor Sir Dillwyn Williams at the University of Cambridge said that, "If societies want to continue using nuclear power, the benefits must be balanced against the risks." Precautions must be taken to prevent those types of disasters from happening again. Although the environment seems to have recovered, right now we don't have a really good overview of the long-term effects on populations, species, or ecosystems.

Chernobyl Disaster From the Mouths of Children

From *Footprint of the Black Wind* - written by children - 'Chernobyl in my destiny' (Minsk 1995)

Irina Prokopenko - 9th grade

"In the days after the accident we were light-hearted and trusting, we inhabitants of the contamination zone. We lived the same lives as before. Children played out in the radioactive rain; we ate pies off open stalls, went to the woods; the grown-ups worked in the fields... I am now 17, and for seven years have lived with thyroid disease..."

Natalla Jarmolenko - 11th grade

"...Last year one of my classmates, my friend Maja Kasajed, died. The whole school

gave her a send-off like a bride. We all stood outside the schoolhouse, and the headmistress rang the bell for Maja, for the end of the last lesson of her short life..."

Yelena Kulazhenko - 10th grade

Chernobyl called my dad too. He worked for the Department of Internal Affairs...in the 30 km (exclusion) zone...He came home with a voice that was strange and dry. He drank lots of mineral water; that's what the doctors prescribed. He told us about empty villages of Palesia, the domestic animals howling crazily in the roads... In 1989 they gave Dad a terrible diagnosis: cancer of spinal marrow... Doctors in Minsk refused to operate... Soviet people in Moscow refused to treat him...Dad was two months in a hospital in Michigan. Dad came back full of hope. Enchanted, we listened to his tales about the strange but sympathetic and kind people he had met in that far-off land... (Moscow) refused follow up treatment. He began to get worse... On March 28th (1993) he died... That's how (Chernobyl) took away my Dad. And it took away my birthday too; Dad died exactly on the day I reached 14."

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